

Airworthiness Directive

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 16846 3/28/2001]

[Docket No. 2000-CE-24-AD; Amendment 39-12153; **AD 2001-06-06**]

RIN 2120-AA64

Airworthiness Directives; Cessna Aircraft Company Model 172RG Airplanes

PDF Copy (If Available):

▼ Preamble Information

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that applies to certain Cessna Aircraft Company (Cessna) Model 172 airplanes. This AD requires you to inspect the main landing gear pivot assemblies for cracks, replace any cracked main landing gear pivot assemblies, and install new bushings on the pivot assembly shaft. This AD is the result of many service difficulty reports of cracked main landing gear pivot assemblies on the affected airplanes. The actions specified by this AD are intended to detect, correct, and prevent future cracks on the original design landing gear pivots. Cracked main landing gear pivots could fail resulting in gear-up landings or loss of braking.

DATES: This AD becomes effective on May 14, 2001.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of May 14, 2001.

ADDRESSES: You may get the service information referenced in this AD from the Cessna Aircraft

Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277; telephone: (316) 517-5800; facsimile: (316) 942-9006. You may read this information at the Federal Aviation Administration

(FAA), Central Region, Office of the Regional Counsel, Attention: Rules Docket No. 2000-CE-24-AD, 901 Locust, Room 506, Kansas City, Missouri 64106; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Steven Litke, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4127; facsimile: (316) 946-4407.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA has received many service difficulty reports of failures of pivot assemblies on Cessna Model 172RG airplanes. Failure of the main landing gear pivots has resulted in gear-up landings or loss of braking. The end of the pivot experiences overload stress because of improper bushing clearance. This stress can produce fatigue cracks that spread until the pivot fitting fails, preventing the landing gear from extending. In other cases, brake fluid leaks through the fatigue crack resulting in loss of braking action.

Original design landing gear pivots (with the original design bushings) could crack, fail, and result in gear-up landings or loss of braking.

Cessna has issued Service Bulletin SEB90-1, Revision 3, dated March 15, 1999. The service bulletin contains procedures for:

- inspecting the main landing gear pivot assemblies for cracks,
- replacing any cracked main landing gear pivot assemblies, and
- installing new bushings on the pivot assembly shaft.

Has FAA taken any action to this point? We issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Cessna Aircraft Company (Cessna) Model 172 airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on October 30, 2000 (65 FR 64640). The NPRM proposed to require you to inspect the main landing gear pivot assemblies for cracks, replace any cracked main landing gear pivot assemblies, and install new bushings on the pivot assembly shaft.

What is the potential impact if FAA took no action? Original design landing gear pivots (with the original design bushings) could crack, fail, and result in gear-up landings or loss of braking.

Was the public invited to comment? The FAA encouraged interested persons to participate in the making of this amendment. The following presents the comments received on the proposal and FAA's response to each comment:

Comment Issue No. 1: Why Apply the AD Action Since it is Not Cost Effective?

What is the commenter's concern? One commenter states that this action is not cost effective because the cost of a gear up landing would be less than compliance with the AD. We infer that the commenter wants the NPRM withdrawn.

What is FAA's response to the concern? The FAA disagrees. The cost of a repair because of a gear up landing would be substantially more than compliance with the AD. The failed pivot would have to be replaced as well as repairs made for damage to the skin, antennas, propeller, wingtip, and other parts. The most important aspect is the safety issue. The passenger injuries that could be prevented through compliance with this AD outweigh the cost of compliance with this AD.

We are not changing the AD based on these comments.

Comment Issue No. 2: Why Not Apply the AD Only to Airplanes That Have Experienced Hard Landings?

What is the commenter's concern? Two commenters recommend that the AD only apply to airplanes that have experienced hard landings. The service bulletin recommends doing this inspection after hard landings.

What is FAA's response to the concern? We disagree. The pivot is improperly loaded during any landing because the small bushing on the pivot allows the small part of the pivot to be loaded before the main bearing is loaded. The installation of the service kit removes this problem.

We are not changing the AD based on these comments.

Comment Issue No. 3: Why Not Require the AD Only on High Time Training Airplanes Where the Landing Gear Has Experienced Many Landings?

What is the commenter's concern? Three commenters recommend that the AD only be required on high time training airplanes where the landing gear has experienced many landings.

What is FAA's response to the concern? The FAA agrees that the reported failures are probably related to the number of landings experienced by the pivot. However, there is no way of determining the number of landings on these airplanes and failures have happened before reaching 2,000 hours time-in-service.

We are not changing the AD based on these comments.

Comment Issue No. 4: Why Not Wait on Taking Action Until a Leak in the Brake System is Detected?

What is the commenter's concern? Two commenters state that action should not be taken unless a leak in the brake system is detected. This is because brake fluid can leak out through cracks in the pivot fitting.

What is FAA's response to the concern? The FAA disagrees. Leaking brake fluid has not

preceded all reported failures. A crack would have to be nearly half way through the pivot fitting before any brake fluid would leak.

We are not changing the AD based on these comments.

Comment Issue No. 5: What is the Provision for Airplanes Already in Compliance With Cessna Service Bulletin SEB90-1, Revision 3, Dated March 15, 1999?

What is the commenter's concern? One commenter states that FAA should make a provision for airplanes already complying with the service bulletin.

What is FAA's response to the concern? The FAA agrees and we are changing the final rule AD to provide for airplanes that already meet the requirements of the service bulletin.

Comment Issue No. 6: Why Require an AD Because the Condition Rarely Results in Injury to Occupants and Airframes Are Usually Repairable?

What is the commenter's concern? Three commenters feel that an AD is not required because the condition rarely results in injury to occupants and airframes are usually repairable. Two of the commenters used the risk assessment from the Small Airplane Directorate Airworthiness Concern Process Guide to conclude that a Special Airworthiness Information Bulletin (SAIB) or General Aviation Alert (GAA) would be appropriate instead of the proposed AD. They state that a landing gear failure is not a hazardous event, and should not be considered a major or minor event when using the risk assessment.

What is FAA's response to the concern? We disagree that an SAIB or GAA would be appropriate. Although injuries in landing gear accidents involving the Cessna 172RG are rare, FAA's risk assessment shows that an airworthiness directive is required because landing gear failure is listed as hazardous in the guide.

We are not changing the final rule as a result of these comments.

FAA's Determination

What is FAA's Final Determination on this Issue? We carefully reviewed all available information related to the subject presented above and determined that air safety and the public interest require the adoption of the rule as proposed except for the changes discussed above and minor editorial corrections. These changes and corrections provide the intent that was proposed in the NPRM for correcting the unsafe condition and do not impose any additional burden than what was intended in the NPRM.

Cost Impact

How many airplanes does this AD impact? We estimate that this AD affects 766 airplanes in the U.S. registry.

What is the cost impact of this AD on owners/operators of the affected airplanes? We estimate that it would take about 20 workhours for each airplane to do both proposed pivot assembly inspections, at an average labor rate of \$60 an hour. Based on the figures presented above, we estimate the total cost impact of the inspection on U.S. operators is \$919,200, or

\$1,200 for each airplane.

We estimate that it would take about 5 workhours for each airplane, to do both bushing replacements, at an average labor rate of \$60 an hour. Parts cost about \$200 for each airplane. Based on the figures presented above, we estimate the total cost impact of the bushing replacement on U.S. operators is \$500 for each airplane.

If a crack is found during the pivot assembly inspection, the pivot assembly must be replaced. We estimate that it would take about 3 workhours to do each pivot assembly replacement, at an average labor rate of \$60 an hour. Parts cost about \$2,783 for each pivot assembly. Based on the figures presented above, we estimate the total cost impact of the pivot assembly replacement on U.S. operators is \$2,963 for each pivot assembly.

We have no way of knowing how many airplanes will require replacement pivot assemblies. The total cost for each airplane for this AD depends on whether a crack is found during the inspection of the pivot assembly. We estimate the total cost impact of this AD for each airplane to U.S. operators is:

Neither pivot cracked	One pivot cracked	Both pivots cracked
\$1,700	\$4,663	\$7,626

Regulatory Impact

Does this AD impact various entities? The regulations adopted will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. We have determined that this rule does not have federalism implications under Executive Order 13132.

Does this AD involve a significant rule or regulatory action? For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. We have placed a copy of the regulatory evaluation prepared for this action in the Rules Docket. You may get a copy of it by contacting the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by Reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701. § 39.13 [Amended]

2. FAA amends § 39.13 by adding a new AD to read as follows:

▼ Regulatory Information

2001-06-06 CESSNA AIRCRAFT COMPANY: Amendment 39-12153; Docket No. 2000-CE-24-AD.

(a) What airplanes are affected by this AD? This AD affects Model 172RG, with the serial numbers 691 and 172RG0001 through 172RG1191, certified in any category.

(b) Who must comply with this AD? Anyone who wishes to operate any of the above airplanes must comply with this AD.

(c) What problem does this AD address? The actions specified in this AD are intended to detect, correct, and prevent future cracks on the original design landing gear pivots. Cracked main landing gear pivots could fail, resulting in gear-up landings or loss of braking.

(d) What actions must I accomplish to address this problem? To address this problem, you must do the following, unless already done:

Actions	Compliance Times	Procedures
(1) Inspect the main landing gear pivot assemblies for cracks.	Within the next 100 hours time-in-service after the effective date of this AD.	Do this action following the ACCOMPLISHMENT INSTRUCTIONS in Cessna Service Bulletin SEB90-1, Revision 3, dated March 15, 1999, and the Model 172RG Series Service Manual.
(2) If you find cracks, replace the affected main landing gear pivot assembly with the part referenced in the service bulletin.	Before further flight after the inspection.	Do this action following the ACCOMPLISHMENT INSTRUCTIONS in Cessna Service Bulletin SEB90-1, Revision 3, dated March 15, 1999, and the Model 172RG Series Service Manual.
(3) Install new bushings on both main landing gear pivot assemblies using the applicable kit referenced in the service bulletin.	Before further flight after the inspection.	Do this action following the ACCOMPLISHMENT INSTRUCTIONS in Cessna Service Bulletin SEB90-1, Revision 3, dated March 15, 1999, and the Model 172RG Series Service Manual.

(e) Can I comply with this AD in any other way? You may use an alternative method of compliance or adjust the compliance time if:

(1) Your alternative method of compliance provides an equivalent level of safety; and

(2) The Manager, Wichita Aircraft Certification Office, approves your alternative. Send your request through an FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Wichita Aircraft Certification Office.

Note: This AD applies to each airplane identified in paragraph (a) of this AD, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if you have not eliminated the unsafe condition, specific actions you propose to address it.

(f) Where can I get information about any already-approved alternative methods of compliance? Contact Steven Litke, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4127; facsimile: (316) 946-4407.

(g) What if I need to fly the airplane to another location to comply with this AD? The FAA can issue a special flight permit under sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate your airplane to a location where you can do the requirements of this AD.

(h) Are any service bulletins incorporated into this AD by reference? Actions required by this AD must be done in accordance with Cessna Service Bulletin SEB90-1 (including accomplishment instructions), Revision 3, and Cessna Service Kit SK172-151, all dated March 15, 1999. The Director of the Federal Register approved this incorporation by reference under 5 U.S.C. 552(a) and 1 CFR part 51. You can get copies from the Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277. You may look at copies at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri, or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

(i) When does this amendment become effective ? This amendment becomes effective on May 14, 2001.

▼ Footer Information

Issued in Kansas City, Missouri, on March 13, 2001.

Larry E. Werth,
Acting Manager, Small Airplane Directorate,
Aircraft Certification Service.